

What is claimed is:

Sub A2 1. Apparatus for remotely measuring characteristics of a communications line comprising:

receiver means for connection to a remote end of the communications line;

5 sender means for connection to the other end of the communications line;

said receiver means generating a signal in response to a selection of one of a plurality of characteristics of said line to be measured;

said signal uniquely representing said selected characteristic;

10 said signal being transmitted along the communications line toward the sender means;

said sender means having detection means for detecting said signal, and switching means;

15 such that on detection of said signal and, on the basis of the unique representation of the signal, the switching means is controlled so as to connect predetermined circuitry across the line at said other end and at said remote end to enable a selected characteristic of the line to be measured.

20 2. Apparatus as claimed in claim 1 wherein said signal is generated by signal generation means and is assigned a unique code such that said unique code is representative of a characteristic of the line to be measured.

sub C2 3. Apparatus as claimed in claim 2 wherein said signal assigned a unique code is represented by a sequence of pulses.

25 4. Apparatus as claimed in claim 1 wherein on detection by said detection means of said signal, said signal is converted into a digital code.

5. Apparatus as claimed in claim 4, further comprising processor means for receiving and processing said digital code representing said signal.

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6. Apparatus as claimed in claim 5 wherein said switching means is controlled by said processor means to connect said predetermined circuitry on the basis of the particular code received and processed by said processor means.

7. Apparatus as claimed in claim 1 including selection means for selecting the characteristic to be measured at random wherein upon selection of the characteristic the predetermined circuitry for enabling the measurement of the selected characteristic is directly connected to the line by said switching means.

8. Apparatus as claimed in claim 7 wherein said random selection of one of a plurality of characteristics is made by depressing one or more respective buttons on said receiver means.

9. Apparatus as claimed in claim 1 wherein said signal is a low frequency signal.

10. A method of remotely measuring characteristics of a communications line, comprising the steps of:

connecting receiver means to a remote end of the communications line;

connecting sender means to the other end of the communications line;

causing the receiver means to generate a signal in response to a selection of one

of a plurality of characteristics of said line to be measured, said signal uniquely representing said selected characteristic;

transmitting said signal along the communications line toward the sender means;

detecting said signal through the sender means and, on the basis of the unique representation of the signal, controlling switching means to connect predetermined circuitry across the line at said other end and at said remote end to enable a selected characteristic of the line to be measured.

11. A method as claimed in claim 10, further comprising the step of assigning a unique code to said signal after being generated at said receiver means such that said unique code is representative of a characteristic of the line to be measured.

12. A method as claimed in claim 11, further including representing said unique code as a sequence of pulses.

13. A method as claimed in claim 10 wherein said detecting step is conducted by
5 detection means forming part of the sender means.

14. A method as claimed in claim 13 wherein following the detecting step, said signal is converted into a digital code.

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cont 10 15. A method as claimed in claim 14 wherein the controlling step is conducted by processor means, said processor means receiving and processing the digital code representing said signal.

16. A method as claimed in claim 15 wherein the switching means is controlled by said processor means to connect said predetermined circuitry on the basis of the digital
15 code received and processed by said processor means.

17. A method as claimed in claim 10 further comprising depressing one or more respective buttons on said receiver means to enable random selection of one of a plurality of characteristics.
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18. A method as claimed in claim 10 wherein said selection is performed randomly such that predetermined circuitry for enabling the measurement of the selected characteristic is directly connected to the line by said switching means.

Sub A 4 25 19. A method of testing a communications line so as to ascertain and measure one or more characteristics of the communications line employing random switching between functions to select said characteristics, the method comprising the steps of:

connecting receiver means to a remote end of the communications line;
connecting sender means to the other end of the communications line;
30 generating a signal in response to the random selection on said receiver means of one of said one or more characteristics, said signal uniquely representing the selected characteristic;

transmitting said signal to said sender means along said communications line;
detecting said signal at said sender means; and

connecting predetermined circuitry, on the basis of said unique representation,
across the communications line at said other end and said remote end to enable the
5 selected characteristic to be ascertained and measured.

20. A method as claimed in claim 19 wherein said connecting step is performed by
controlling switching means in response to processing of said signal.

10 21. A method as claimed in claim 19 further comprising depressing one or more
buttons on said receiver means corresponding to a desired characteristic to be
measured.

22. A method as claimed in claim 19 further comprising the step of assigning a
15 code to said signal to uniquely represent the selected characteristic.

23. A method as claimed in claim 22 wherein said code is represented as a
sequence of timed pulses generated at the receiver means.

20 24. **Apparatus for testing a communications line so as to ascertain and measure a
plurality of characteristics of the line, said apparatus comprising:**

receiver means for connection to a remote end of the communications line;
sender means for connection to the other end of the communications line;
selection means enabling the random selection of one of said characteristics;
25 **said receiver means generating a signal in response to the random selection of
one of said characteristics;**

**said signal uniquely representing the selected characteristic and being
transmitted along the communications line for receipt by the sender means;**

detection means for detecting said transmitted signal;

30 **switching means for connecting predetermined circuitry across the line at said
other end and at said remote end; and**

such that on detection by said detection means of said transmitted signal, said switching means connects said predetermined circuitry to enable the selected characteristic to be ascertained and measured.

5 25. Apparatus as claimed in claim 24 wherein said signal is generated by signal generating means and is assigned a code.

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10 26. Apparatus as claimed in claim 25 wherein said code is transmitted as a sequence of timed pulses from the signal generating means to the detection means.

27. Apparatus as claimed in claim 25 further comprising processing means for receiving and processing said code and controlling said switching means to connect the predetermined circuitry on the basis of the code.

15 28. Apparatus as claimed in claim 24 wherein said selection means comprises a plurality of function buttons corresponding to said plurality of characteristics, whereby a characteristic to be measured is selected by depressing one or more respective function buttons on said receiver means corresponding to the characteristic.

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